

Component 1: Coordination of Weed Control

2012 Annual Report

Prepared for:

Trustee Council for Natural Resources at Rocky Flats

Submitted to:

**Colorado Department of Public Health and Environment
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A. INTRODUCTION

This is the 2012 year end weed control report for the 16 land owners/managers of the properties surrounding Rocky Flats National Wildlife Refuge with lands most likely to provide unwanted noxious weed seeds to the property. These sixteen are listed in Appendix 1 which also provides of map of their properties. In this report we discuss contact and activity with each of these owners/managers, focusing on visitation, discussion and assessment of each weed control program.

Nearly all of the 16 owners/managers were highly cooperative with JCNA, and most have had a noxious weed control program going on for some time. An analysis of each of the programs of these owners/managers follows. A summary table rating site danger to the refuge and noxious weed presence, owner/manager cooperativeness, and program effectiveness is provided following the owner/manager reports.

B. OWNER/MANAGER REPORTS

The reports on individual properties surrounding the Refuge are organized below by the numbering system used on the map in Appendix 1.

1. CDOT. The Colorado Department of Transportation performs weed control on three highways around Rocky Flats: 72, 93 and 128. It has maintained its spray program for about 10 years and expends considerable funds on weed control throughout the state as weed control is highly important to CDOT.

CDOT uses various chemicals depending on plants and circumstances. Their goal is to promote denser grassland that will keep out the weeds. Much of the right-of-way around Rocky Flats has good prairie with native grasses and forbs, and these areas are not sprayed. The ROW is narrow along the east side of Highway 93 (about 30'), but 100' along the western side. The ROW is of variable width, and often greater than 100' along Highway 128.

This year JCNA contacted Mark Slayton on 30 April. He does the spraying of roadsides in this area. He had already completed his initial spraying along Highway 128. He used Telar XJP to kill toadflax, white top cress and knapweed. The area to the east of the Wind Farm entrance, where Canada thistle is abundant, was sprayed with Tordon 22K.

The shoulders along Highway 93 were widened during the summer, were mainly a construction area, and were not sprayed this year.

JCNA rates their weed control program in the Rocky Flats area this year as GOOD.

2. BCOS. Boulder City Open Space has lands west of Highway 93 and an area north of Highway 128. The southern portion of the land west of Highway 93 is Section 17, from which any weed seeds would blow directly onto the adjacent Section 16 to the east. Their lands north of the Refuge are separated from the Refuge by the NREL wind farm.

BCOS has two weed coordinators. Laurie Deiter is the weed coordinator on lands west of Highway 93 while Eric Fairlee directs activities north of the Refuge along Highway 128.

The land west of Highway 93 has some of the best xeric tallgrass prairie in the Rocky Flats area. Their major noxious weeds in this area are diffuse knapweed, Dalmatian toadflax and sulfur cinquefoil. BCOS was unable to perform any of their planned work in this area owing to needs elsewhere on their properties.

The BCOS land on both sides of Highway 128 (and east of Highway 93) is under the direction of Eric Fairlee. This year no treatments were applied in this area either.

They have done some excellent work in the past but were unable to do anything this year and JCNA rates their current weed control program as POOR.

3. Boulder County Open Space. The Boulder County open space lands are immediately north of Highway 128 and east of the lands administered by the City of Boulder. They thus border the north boundary of the Refuge for over two miles. Steve Sauer, weed coordinator for Boulder County Open Space, led JCNA on a trip through the County open space area on 8 June. We visited the Tordon sprayed 100 acre Meyerhoffer field just west of McCaslin Boulevard and about a mile north of Highway 128. Spray application two years ago killed virtually all noxious weeds and a great deal of Japanese brome in the field. The field remains essentially weed-free now. Our inspection revealed a heavy perennial grass cover. The adjacent field to the west was again used as a “Cows Eat Weeds” active area grazed by Hogan cattle and the results from these two approaches show clearly the benefits of spraying to establish a heavy weed-free turf. The “Cows Eat Weeds” area shows little or no reduction in noxious weeds and will probably be sprayed by Sauer next year.

The major noxious weed problem for the County Open Space occurs in disturbed soil areas along roads. This will continue to be a major focus of the county weed control problem. In their spray program Sauer feels Telar is perhaps best for knapweed and it is much gentler than Tordon. He also feels that Telar is more effective in summer than Milestone.

We also examined the property along Highway 128 just north of the Refuge, the former Verhey property. In this area the County carries out controlled grazing which Sauer feels is essential to grassland. The only noxious weed problem is with toadflax, which will be sprayed next spring.

JCNA rates their weed control program as GOOD.

4. NREL. National Renewable Energy lands occupy 302 acres on the northwest corner of the Refuge. This area was established by DOE as a wind farm many years ago. Nearly all of the undisturbed portions of their site, which cover perhaps half the site, are covered with good to high quality xeric tallgrass prairie of mixed grasses and forbs and

pose a negligible weed threat to the Refuge. However, the many disturbed areas host noxious weeds, and owing to the upwind proximity to the Refuge, present a continual threat.

The NREL program management this year has been excellent and a model for other programs on other properties. First they have mapped the occurrence of major noxious weed infestations. Then they have developed a spray program with an experienced firm, Vegetation Services, owned by Wayne Woods. This year they have used his services in the spring and the fall over large portions of the property and have mapped the herbicides used on the site: Milestone, Redeem and Tordon 22K. Some Escort was used as well. This map provides NREL with a good record of what was done this past year.

JCNA was given a tour of the site by Tom Ryon on 2 Aug to see the areas that have been sprayed. We first looked at the south side of the entry road where Vegetation Services sprayed to kill knapweed, and where no living plants were noted. JCNA then examined the northeast corner of the property where spraying has killed nearly every teasel. JCNA next inspected the eastern strip housing the turbines. Each requires a construction and maintenance road, but little weed problem was seen. Disturbed areas here will be planted with native seed.

We next visited the large area of solar panels operated by Sun Edison in the central portion of the site. The area is closed to visitors. Weed maintenance is highly important in this area to prevent shading of the solar panels. To date they have relied on mowing to keep the weeds under control, as the area has been completely disturbed and is highly susceptible to weed invasion.

The formerly wet area to the south is now dry upland. Formerly it was dominated by Canada thistle but it has been sprayed at least twice and no thistle was visible. The area is dry upland and should be reseeded with native grasses.

JCNA rates their weed control program this year as GOOD.

5. LaFarge. Lafarge Corporation has sold the mining permits in Sections 4 and 9 to the Refuge and is now in the reclamation phase. To do this work they have subcontracted with Arnold's Custom Seeding, which has done this type of work on other LaFarge properties. I talked with James Simpson, the project manager. They will totally clean up the place, removing power poles, dirt piles etc. They will then contour the site and replant with native seed in accordance with the reclamation plan.

In summary, there is no weed control operation taking place this year. After acceptance of the reclamation, by the Refuge of Section 16 they will take responsibility for weed control. No grade was given LaFarge this year as a result of the changes.

6. Bestway. Bestway Concrete operates the large gravel and clay mining area just west of the Refuge and north of the west entry road into the Refuge under the direction of mineral rights owner Charlie McKay. This area has in the past been a major source of

knapweed seed blowing into the Refuge, but the present operation has greatly improved weed control on the property through use of a contractor on the outer berms and an active spot spray program in places where weeds are extensive.

JCNA had a site visit over the entire property with Dennis Wood on 8 October this fall. Bestway uses the firm Foothills Vegetation, owned by Mike Wilkinson, to spray weedy areas. Foothills has concentrated on the berms bordering the south and east sides of the operation and has rid these areas of knapweed patches; in fact very little can be found here. On the berms Kochia, a very heavy invader on disturbed soils, is abundant in many places. It provides a good cover on the unvegetated slopes, and until a good perennial grass cover is established does a good job of slowing down slope erosion. Many other formerly mined and disturbed areas were also sprayed by Foothills. With the constant mining and establishment of new piles of overburden and unwanted soils, a ready soil mix is given to knapweed, and it will require regular spraying to kill new growth. They sprayed this year with Milestone, mixed with Escort and Telar. The area was spot sprayed twice this year and the spray should provide a two year residual. Most knapweed rosettes were sprayed and should not flower this year.

Vince Eisenhand did additional spot spray work on the north berm, in weedy areas along the western boundary, and in many of the active disturbance areas in the northern section of the operation.

The Bestway mining area will have a constant weed problem as long as they are actively mining and processing, but their program this year has been effective. Despite the inherent difficulty in maintaining a weed-free area with a continuous mining operation taking place, their program keeps the noxious weeds to a minimum and JCNA rates their weed control program as GOOD.

7. Candelas. Candelas occupies several thousand acres between the Refuge and Section 16 on the north and Highway 72 on the south. The western portion of land adjacent to the Refuge is undisturbed native prairie with very few weeds, except along Highway 72 where the soil has been disturbed by pipeline construction. The perennial grassland vegetation provides a buffer and, along with the prevailing wind direction from the west and north, prevents most weed seed from the Candelas project from entering the Refuge.

However, Candelas is actively developing in the northeast corner of their property, adjacent to the eastern portion of the Refuge. Essentially all vegetation in this area has been removed and a large amount of the existing soil moved to prepare the site for a large housing development. They have left no native vegetation buffer between their development and the Refuge. Though most of the prevailing winds will be from the west and north, the area's close proximity to the southern border of the refuge makes it imperative to examine the site during the coming years to ensure minimal weed seed invasion into the Refuge.

JCNA rates this weed control program as MEDIUM.

8. State Land Board. The Colorado State Land Board (SLB), former owner of Section 16, has sold the surface to the Refuge, which has also acquired the mineral rights. The USFWS is now the manager of the area and therefore manager of any weed problems. The section will form the southwest corner of the Refuge. The transfer has only just been completed and no weed program has yet been instituted. Several entities have leases on portions of the property with responsibility for weed control on these areas as discussed below for their individual holdings: United Power, a substation; Xcel Energy, a small gas pump area; Denver Water, a mile long water ditch; UP Railroad, a mile long railroad line; the USFWS fenced area along Woman Creek; the McKay grazing lease over most of the section; the Red Mountain Resources LLC oil production site, and others.

The area west of the UPRR spur and south of the Red Mountain oil lease has seen little disturbance, supports high quality xeric grassland, and has very few noxious weeds. The area east and downwind of the abandoned mining area in the center of the section is infested with diffuse knapweed, and some toadflax, and has in the past provided a constant stream of wind-blown noxious weed seed to the Refuge immediately to the east.

Although a recent spray program by C. McKay has greatly reduced presence of knapweed and other noxious weeds on the site, there was no overarching noxious weed control program on Sec 16 and JCNA rates their program POOR.

The addition of this property to the Refuge means that it will no longer be evaluated as land surrounding the Refuge. Rather, the importance of weed control on BCOS lands to the west becomes much greater, as their lands west of Highway 93 now border Refuge lands east of the Highway. Furthermore, the strong winds from the foothills to the west will carry seeds directly on to the Refuge, where the problem of funding to manage the on site weeds continues to be a problem.

9. Denver Water. Tony Stengle, Assistant District Foreman of Denver Water, guided JCNA along the Denver Water canal through Sections 16 and 9 on 22 May. Denver Water is converting the ditch into an underground concrete tunnel topped with soil and grass, and completed conduit construction and seeding on the south half of Sec 16 two seasons ago. The ditch was sprayed with Agua-Suite this year. They empty the ditch before spraying and the chemical is not harmful to drinking water. DW has them do spot spraying when needed on the two top sides of the ditch.

On the trip with Stengle we first looked at the Section 9 portion and then drove down through Section 16. Their spray program this year has resulted in about a 90% killing of knapweed overall. There is good grass cover on much of the outside areas of the ditch, which will help exclude the noxious weeds as the spray program continues to reduce their presence.

The south half of the ditch in Section 16 shows quite good germination from the earlier planting. The new grass appears to be about 1/3 as dense as the surrounding grassland and should get denser over the years.

JCNA rates their weed control program this year as GOOD.

10. UPRR. The Union Pacific railroad spur line goes more than three miles north from its junction with their main line south of Highway 72. The spur passes through Sections 21, 16, 9 and the southern half of 4. DeAngelo Brothers have the weed control for this portion of the Denver area railroad network. They generally do a single late spring or early summer herbicide spray from a locomotive, but on this short spur they do hyrailing with a spray truck.

Their weed control program along the spur tracks in the four sections adjacent to the Refuge was in two parts. First on both sides within 14' of the center line, total weed kill was done using a mixture of chemical weed killers. Spray was applied from booms a foot off the track, presumably the same as last year, with a mixture of the following chemicals: DMA4IUM, Glycophosphate 4 and Prodiamine 65WDG. Total vegetation kill is important in this narrow swathe adjacent to the tracks.

The remainder of the ROW, 50' on either side of the track, where grassland predominates, was sprayed this year with booms from the hyrailing truck that spot sprayed Milestone. This approach has the disadvantage of not completely covering the 100' right-of-way. Their booms spray out only 30' from the track, leaving a 20' area unsprayed beyond this. In Section 16 this does not present much of a problem, since much of the ROW has good grass cover and no spray was applied to these areas. However, in the northern portion of Section 9 and the southern portion of Section 4, there is a major knapweed infestation that may require special treatment such as going very slowly or stopping in that area so that that weedy area can be more effectively treated.

JCNA rates their weed control program as MEDIUM and hopes that next year some of the worst areas can have the noxious weeds killed.

11. Red Mountain Resources LLC. RMR is the manager of the approximately four acre petroleum drill site in the north part of Section 16. The site is actively producing petroleum. The previous lease owners left the property highly disturbed and RMR is actively leveling and seeding the area according to the Colorado Oil and Gas Commission's seeding requirements. On 16 November, JCNA was present to observe the seeding of the disturbed areas. They were drill seeded by Mike Wilkinson of Foothills Vegetation using the required seed purchased from Pawnee Grasslands. The seed mixture was drilled into the soil despite considerable rockiness. Many knapweed rosettes were noted in highly disturbed western portion and Foothills will spot spray where necessary next spring to eliminate the knapweed and any other noxious weeds noted.

JCNA considers this program of weed control and reseeding a sound one and rates the program as GOOD.

12. United Power. United Power manages a sub-station and the surrounding four acres of mostly native grassland at the northwest portion of Section 16. The United Power manager is Bryant Robbins. JCNA was able to tour the site on 19 June with Josh Wood of Prime Vegetation Management, the spray contractor. They are in the third year of noxious weed management on this area. The central one acre fenced substation area has always been sprayed to remain devoid of any vegetation. This year it was sprayed with Provar, a complete plant killer.

The other four acres (the northwest 300' of Section 16), while primarily native grassland, do contain several weedy areas. The Milestone spot spraying this year was done mainly for thistle and knapweed, and done from a vehicle with booms. Most of the vegetation cover is high quality native prairie which was not sprayed. The United Power goal will be to eliminate the noxious weeds and convert those areas to good prairie. The western edge of the property does have considerable toadflax which will require additional attention in the future.

JCNA rates their weed control program as GOOD.

13. TXI-Boulder. JCNA visited the site with manager Randy Moulton on 15 August to assess their weed program. They have purchased a small tractor that has a mower and a boom on the rear for spray work. East of the plant they have a great deal of knapweed in a large area of old machinery storage. They plan to move the machinery to the north so that the weedy area can be sprayed and then covered with chips. This should eliminate weed infestation there.

They also have abundant knapweed and sunflower along the road on the eastern boundary which they plan to spray next year.

JCNA rates their weed control program as MEDIUM and a good beginning to better weed control of the area.

14. XCEL Energy. Xcel has a very small natural gas pump station in a 30' x 30' fenced portion of the northwest corner of Section 16 which JCNA checked on 22 June. They sprayed heavily last summer to kill all the vegetation in this small area. They will continue to put it on their observation and control list until the noxious weeds are totally gone. This year a good bit of Japanese brome has gotten established, especially in the southwest corner of the site.

JCNA rates their weed control program as GOOD.

15. Mountain Plains Industrial Center. This proposed industrial center occupies about 160 acres of the western portion of Section 9 adjacent to and east of Highway 93. The acreage includes two buildings in the SW corner and storage/construction areas in the SE corner

The undisturbed land to the north is covered with good native prairie that is grazed periodically by the owner C. McKay. Knapweed and Dalmatian toadflax are confined primarily to disturbed areas along roads and railroad tracks, but McKay has a spray program in operation on these weedy areas. JCNA observed the site with McKay on 18 June from the new road bisecting the northern portion of the property. The northern edge of the property along the east-west road there is entirely clean of weeds on the western two-thirds, but by the railroad tracks to the east there are heavy knapweed infestations.

JCNA rates this weed control program as MEDIUM.

16. Hogan Ranch. Bill Hogan, whose ranch occurs west of Highway 93, also owns about 70 acres in Section 4, east and alongside of the highway. He sold the southeast corner of this land to Old Tyme Lumber some time ago, and their area is totally covered with logs, slabs, boards and equipment. There is minimal vegetation on this site.

Hogan's 70 acre field is primarily covered with good native grassland but has no available water for grazing animals. He only uses it for grazing horses, as there is a tunnel under the highway and horses will return to his ranch for water after grazing in the field. There are some scattered knapweed plants present on the acreage, and there is a heavy infestation along the access road on the south, both west of Old Tyme Lumber and east of the same property, and also in the area east of the RR tracks. Hogan relies entirely on natural insect control for knapweed control on the grazing acreage which seems to work in areas with well-established grass cover, but does not work in disturbed soil areas. JCNA was never able to meet on site with Hogan but was able to observe the dense knapweed patches along the service road.

JCNA rates his weed control program as POOR, particularly along the road and field entrance which are badly in need of weed control.

Summary Table

Owner/ Lessee	Danger to Refuge	Cooperativeness	Noxious Weed Presence	Weed Control Program
1. CDOT	HIGH	HIGH	FEW	GOOD
2. BCOS	HIGH	HIGH	FEW	POOR
3. BCntyOS	HIGH	HIGH	FEW	GOOD
4. NREL	HIGH	HIGH	FEW	GOOD
5. LAFARGE	HIGH	HIGH	FEW	Mining Project Ended
6. BESTWAY	VERY HIGH	HIGH	MEDIUM	GOOD
7. CANDELAS	LOW	HIGH	FEW	MEDIUM
8. SLB	HIGH	NONE	MEDIUM	Property Sold
9. DWATER	MEDIUM	HIGH	FEW	GOOD
10. UPRR	MEDIUM	HIGH	FEW	MEDIUM
11. RED MTN	LOW	HIGH	FEW	GOOD
12. UPOWER	MEDIUM	HIGH	FEW	GOOD
13. TXI	MEDIUM	HIGH	MEDIUM	MEDIUM
14. Xcel	LOW	HIGH	FEW	GOOD
15. MOUNTAIN	MEDIUM	HIGH	MEDIUM	MEDIUM
16. HOGAN	MEDIUM	NONE	MEDIUM	POOR

Explanation:

1. Danger to Refuge. Rated on basis of wind direction, proximity and size of area relative to Refuge—HIGH, MEDIUM, LOW.
2. Cooperativeness: Responsiveness and allowing or providing a tour of property—HIGH or NONE.
3. Noxious Weed Presence: Rated HIGH if many scattered patches, MEDIUM if less; and FEW if only a few scattered patches.
4. Weed Control Program: Rated GOOD, if weed control is effective with an active program; MEDIUM if an active program but not as effective as it could be; FAIR if an active program but not effective in certain areas; POOR if no program.

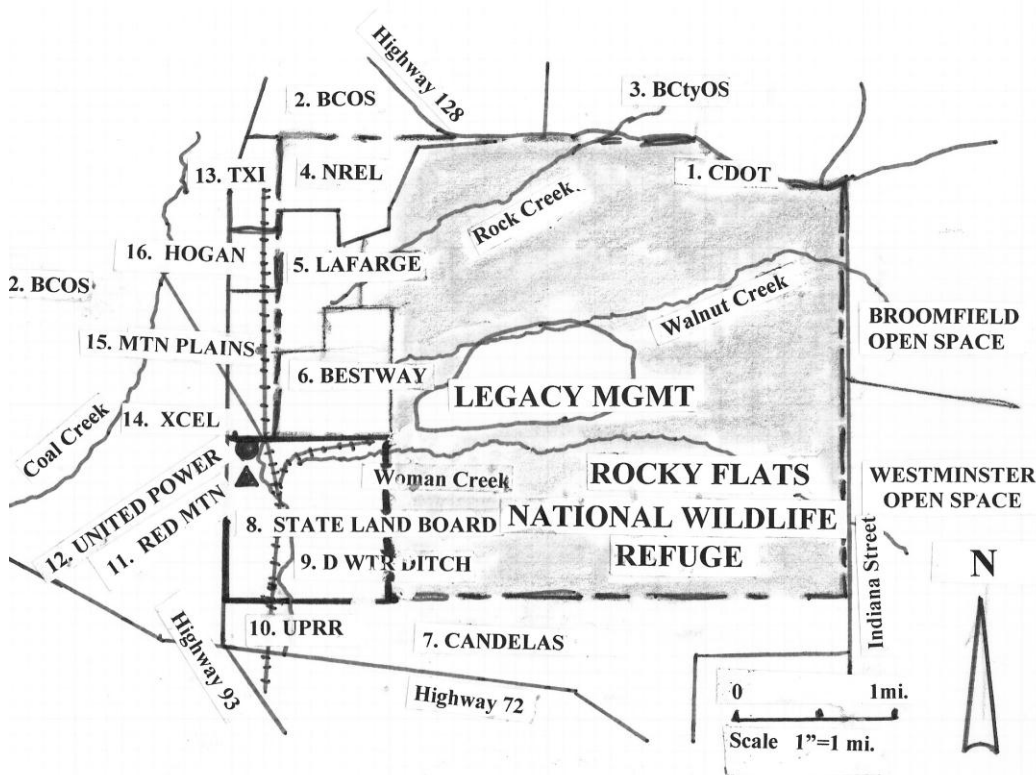
D. BIOLOGICAL CONTRAL OPERATIONS

- 1. INSECTS.** No new insect introductions were made by owners/managers this year. There remains, however, abundant insect infestation of *Larinus* beetles on knapweed flowers, which reduces flowering and fruiting of the plant. In some areas the destruction of seed heads is considerable. Some *Mecinus* beetles are also infecting Dalmatian toadflax and reducing their growth and seed production.
- 2. COWS EAT WEEDS.** The program was run again this summer at the same place as last year on the Boulder County Open Space. The program indicates that cows will eat noxious weeds but the same weeds come up the following growing season. In short, they greatly reduce the noxious weed seed for that year but do nothing in preventing growth the next growing season. The contrast between the CEW grazing and the area sprayed with herbicides by the County immediately to the east where all noxious weeds have been eliminated is striking.

E. RECOMMENDATIONS FOR THE 2013 PROGRAM

- Discuss proposed weed control programs for the coming year with each of the owner/managers.
- Visit sites with owners/managers to better assess noxious weed location and abundance, as well as assess effectiveness of work the previous year.
- Observe sites when actual weed control is taking place whether spraying, mowing or insect release to assess effectiveness of these various treatments.
- Observe spray application by contractors whenever possible and discuss chemicals used and spray program.
- Continue to encourage any landowners/managers that have no programs to get started on one.
- Encourage proper seeding of native grasses and forbs where seeding takes place.
- Prepare an end-of-year report summarizing JCNA analysis of the programs.

Appendix 1



OWNERS/MANAGERS AT ROCKY FLATS

1. **CDOT.** Jim Walker, State Weed Coordinator. CDOT owns ROW on 93 and 128.
2. **BCOS.** Laurie Dieter and Eric Fairlee, Weed Control. OS west and north of Refuge.
3. **BCtyOS.** Steve Sauer, Bldr County Open Space. North of Hiway 128.
4. **NREL.** Mike McGrady, Maint Spvr, Wind Farm, NW corner of Refuge.
5. **LAFARGE.** Leases sold to the Refuge.
6. **BESTWAY CONCRETE.** Myron Moorhead, Mgr. Mine just west of Refuge.
7. **CANDELAS.** Charlie McKay, owner. Development on south border.
8. **STATE LAND BOARD.** Section 16 now part of Refuge.
9. **DENVER WATER.** Kevin Keefe, Land Mgr. 150' water ditch through Secs 9/16.
10. **UPRR.** Union Pacific RR. Dan Thompson, Track Maint, 100' spur thru Secs 9/16.
11. **RED MOUNTAIN.** Phillip Barber. 4 acre oil drill site in Sec 16.
12. **UNITED POWER.** Bryant Robbins, Mgr. Power Station in NE part of Sec 16.
13. **TXI AGGREGATE.** Randy Moulton, Mgr. 36 acre site west of NREL.
14. **XCEL ENERGY.** Adam Pena. Small gas pump station in NW corner of Sec 16.
15. **MTN PLAINS INDUSTR. CTR.** C. McKay, owner. W 160 acres of Sec 9.
16. **HOGAN RANCH.** Bill Hogan, owner. Ranch W of 93; 70 acres E in Sec 4.